Social inclusion and use of equipped public space for physical activity. Analysis and promotion prospects

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for the transition toward resilient communities

edited by G. Colombo | P. Lombardi | G. Mondini

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e-agorà/e-ἀγορά for the transition toward resilient communities

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Social inclusion and use of equipped public space for physical activity. Analysis and promotion prospects

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Key- words: outdoor, urban spaces, fitness equipment, social inclusion, universal design.

Introduction

Physical inactivity is an important health risk factor that may be addressed at community level. In outdoor urban spaces and parks activity physical improves general wellbeing and plays an important role for reduction of chronic diseases.
Different health impact assessment methodologies have been applied with distinctive assumptions on key parameters, in Europe and United States.
The results of different methodological approaches have shown that the active transport and physical activity - in proximity and neighborhood areas - can provide substantial net health benefits, irrespective of geographical context.
Nevertheless, there are difficult in reconciling the approach for measuring community development activities in outdoor spaces with the outcomes and impacts of health, like the World Health Organization (WHO) has underlined too (Ison 2009).

On one side, physical activity can be done in a variety of ways, such as walking or cycling for transport, performing fitness exercises, participating in sports, playing in the park, working in the community garden, taking the stairs or embedding into daily routines. Therefore, it is difficult to define indicators that take into account not only the time spent, but also type and quality of activities, depending on different needs of health and adoption of different lifestyles.
On the other side, disability, age, gender, race and ethnicity may illuminate the issues related to health disparities and they have a significant influence on likelihood of doing physical activity in outdoor spaces.
WHO Europe has outlined that disadvantaged populations are less likely to have easy access to the places that encourage an active lifestyle. Women and young people in minority groups are often excluded from mainstream sport and physical activity programmes, accessibility and integration are key to enabling people with different disabilities to enjoy enhanced levels of participation. When they choose to be active, they often face risks related to road security and perceived risk of crime (Edwards and Tsouros 2008).
Safe public neighborhood parks and outdoor spaces can reduce inequity in access and choices for physical activity, providing facilities and equipment for active living, such as fitness areas, playgrounds and multi-purpose sports fields.
Parks and sites in the healthy city must offer a physical and built environment that supports recreation, well-being, security, social interaction, easy mobility, sense of cultural identity and accessibility to the needs of all urban users and citizens.
Therefore, innovative neighborhood planning and design must respond to the different way of using the public space of coexisting communities for health, welfare and social exchange.
Community facilities can stimulate users to increase their levels of physical activity and social inclusion, doing so they require attention to the outreach and the public

space management, complementary to the planning and design in urban regeneration.
In this view, the paper analyzes different propensity of urban communities to physical activity and identifies main factors and requirements in the design of outdoor public spaces, that can affect the increase of physical activity.

The included trials have revealed the main factors of health risk prevention for diseases (Levine 2015, Woodcock et al. 2011), the social inequality in access to physical activity and environmental factors that inhibit the use of public space for walking and physical activity (Shephard et al. 2004, Van Holle et al. 2012, Christine et al. 2015, Gascon et al. 2016).

Methodology

The methodological approach is developed through the analysis of factors and indicators in the scientific literature and testing, from the local planning to the design.
Insufficient physical activity is the 4th leading risk factor for mortality (WHO 2012), current urban planning choices also impact on the public lifestyles.
In the long term, a higher percentage of the population achieving regular physical activity in outdoor spaces may lead to a lower level of chronic illness. Certain epidemiological studies have found that the lack of green space potentially causes cardiovascular mortality and poorer mental health (Gascon and others 2016).
Instead, long-term exposure to urban environments with greater resources to support physical activity is associated with a lower incidence of obesity and type 2 diabetes mellitus (T2DM) (Christine et al. 2015).
Generally, individuals who are insufficiently physically active have a 20% to 30% increased risk of all-cause mortality compared to those who engage in at least 30 min of moderate intensity physical activity most days of the week (Woodcock et al. 2011).
A transition in urban planning and design is needed to make systematic plans to improve the relation between urban activities and health.
Research concerns guidelines for developing the operational design of areas for outdoor physical activity, the scale of local planning - regarding the choice of the site to transform and equip - to the definition of key environmental and space requirements of the areas, the definition of the types of site accommodation, and equipment to be installed.

A few recent studies provide relevant methodological approach and significant information about the propensity factors on the location of the equipped areas at the neighborhood level.
The *International Physical activity and Environment Network* (IPEN) study - a cross-sectional research including 6822 adults aged 18–66 years from 14 cities in ten countries on five continents - suggests the importance of engaging urban planning, transportation, and parks sectors in efforts to reduce the health burden of the global physical inactivity, in relation to the similarity of findings across various cities (Sallis et al. 2016).
In reference to the study, indicators of walkability, public transport access, and park access are particularly interesting for identify the preferential terms of localization of sites and facilities for physical activity.
These indicators are meaningful to inform neighborhood policy, with the perspective of creating and maintaining Healthy Places (cycling, walking, doing gymnastics). The IPEN study has measured physical activity connecting to variables related to built environment and four of six environmental attributes are significantly and linearly related to increasing physical activity, in the models: net residential density (1000 dwellings/km^2); intersection density (100 intersections/km^2); proportion of retail combined and civic land area to total buffer area; public transport density (10 transport points/km^2); number of parks contained or intersected by buffer (10 parks/km^2); street network distance to nearest transport stop (1000 m).

The study has used comparable objective measures of built environments (geographic information systems) and physical activity (electronic accelerometers that recorded motion every minute).

The IPEN study results provide the first elements to perform an alternative assessment of the local planning systems.
On the level of selected project area, complex factors related to environmental, technical and perceptive quality of the site must be defined.
The WHO Europe physical activity planning guide detects some meaningful factors (Edwards and Tsouros 2008):

- wide range of accessible and attractive routes, accessible by foot or bicycle for efficient public transport;
- mixed-use, high-density communities with easy access to principal neighborhood destinations and recreation facilities;
- walkable, attractive neighborhood and trail connections between neighborhoods;
- integration of planning decisions related to the built environment concerning public health and physical activity;
- accessible facilities for physical activity;
- areas that are safe in terms of road security and crime;
- plan and services for special groups that enable active living for all ages and abilities;
- strong involvement by a variety of stakeholders and citizens;
- social norms and expectations that support and encourage active living as a way of life in the city.

Safety and road security standards can be a unifying fundamental concern which impacts the whole community and can even bring it closer together rather than polarizing different user groups.
The case studies of Amsterdam and Copenhagen as walkable cities also feature these factors as the key catalyst that triggered the shift towards human-centric cities in the 1970s.

The analysis reported and others studies (Heath et al. 2006) (van Holle et al. 2012)
reveal that adults who lived in activity-friendly neighborhoods do more of physical activity per week (for example 68–89 min) than those in the least activity-friendly neighborhoods. The relation of built environments to physical activity is generally similar across advanced cities, where public parks provide places for recreational physical activity.
In short, the design principles can be apply across countries, but the performance standards are still being defined.

Results and discussion

Design quality of urban environments has the potential to contribute substantially to physical activity, user-centred design can provide solutions to modern healthcare requirements, the emerging factors are:

- Designing for and with all, viewing accessibility requirements in public space as an opportunity, rather than a constraint, for designers;
- Providing life-support and equipments which are adapted to user comfort and spatial and climatic conditions in outdoor spaces.

The main factors and requirements considered regard security, protection from climate and air pollutants, visibility and accessibility, attractiveness and image, presence of multi-functional

areas (equipment for children and adults, loisir areas), fitness equipment for different ability levels (children, adults, elderly, physically disabled).
According to WHO studies (Shephard et al. 2004) and the direct survey of parks users in the North of Turin, the main technical, environmental and social factors that influence the physically activity in outdoor spaces are outlined.
Requirement of Class: spaces and equipment security

- adequate exercises to physical capacities (not available for people with different abilities);
- equipped areas for free fitness activities, individual or group: “no space of our own to do the things we like to do” (especially young people);
- presence of integrated equipped areas for physical activity (equipment for children, seniors, adults);

Requirement of Class: social security and inclusion

- road security (especially older people and parents in relation to their children);
- visible and controllable localization of physical activity areas and fitness equipment stations;
- attention to personal safety and crime prevention (especially girls, women and parents of small children);
- attention to ageism (too old to be active), sexism (not appropriate for girls and women) and cultural and religious restrictions;

Requirement of Class: acoustic, lighting, hydrothermal comfort

- weather conditions control: mitigation extreme heat, cold and icy conditions (especially older people), shading, presence of trees, “heat island effect” mitigation, wind containment;

Requirement of Class: accessibility, usability, visitability

- accessibility to sites for all;
- protection of being injured or have been injured (especially among seniors);
- contiguity with loose, pleasure and relax spaces (especially among seniors and mothers with small children);

Requirement of Class: reliability, management

- prevention against unattractive environment (litter, graffiti, vandalism);
- cyclic and ordinary maintenance;
- site management and periodic control;
- organization of separate waste collection and transport to landfills;

Requirement of Class: environmental load

- mitigation by air pollution and noise pollution related risk;
- devices for the treatment and reuse of storm water.
- technical elements and soil characterization that avoid the water stagnation, the soaking, the formation of mold;
- presence of eco-recycled elements and materials.

Specifically, the use of a design for all and inclusive approach represents a crucial factor in the design of outdoor equipment: accessibility from multiple directions, multi-functionality of equipment (for example the use of certain equipment for both children and old people), clarity in the signaling, use of color with signal function, equipment for motor disabled (also accessible by children and adults with average abilities).
Another set of relevant factors for social inclusion concern the conditions for overcoming cultural and religious restrictions.
From direct observation emerges, for example, how fitness equipments which are in a pleasant place, with the possibility of positive social surveillance, in proximity to areas for children's games, as well as ease of use, are also used by Muslim women.

In addition, the proximity of safe fitness and children play stations – with visual and perceptive control of the zone - is essential to ensure activities carried out by parents with young children.

Conclusions

"The quality of a space will affect how well it is used" (CABE 2010).
More cities aspire to create more people-friendly places to encourage walking and physical activities by establishing new services and by designing suitable infrastructure safer and more comfortable. IPEN research and WHO guidelines have identified criteria for the location of equipped places for physical activity, into the local planning.
Quality improvement of health urban planning and design implies to experience a multidisciplinary methodological approach - epidemiological, morphological, technical performance, environmental, sensory-perceptive – and citizens participation. Experiences developed in the city of Turin (Barriera di Milano and San Salvario neighborhoods) and the comparison with multidisciplinary international research has allowed to outline first guidelines for the design of public spaces in the Health City.
Furthermore, the study aims to testing the potential of the social media and the planning from the bottom up, to check inclinations and profiles of open public space users for physical activity - examining the vigorous and moderate physical activity and the walking - in an urban suburb.
On the example of the online "community map" of public space, the research intends to develop a "community map" of the health public space.

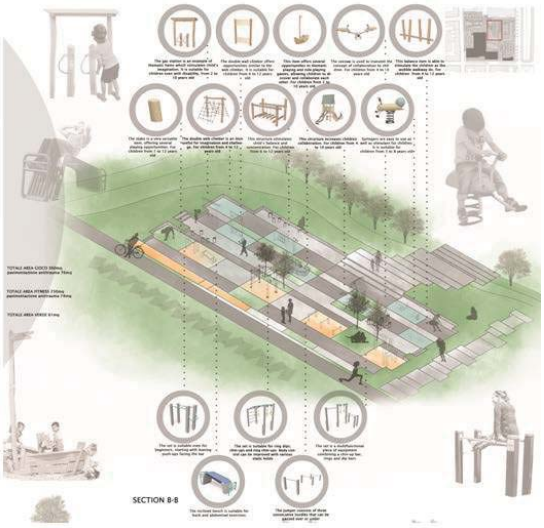

Fig. 1. Project scenario: physical activity areas for different abilities. Workshop Urban micro-landscapes.Tasting the Landscape (Politecnico di Torino DAD, AIAPP-IFLA 2016).

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